UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/531,531	03/21/2000	Yuichi Shirota	257718	7092

27572 7590 06/13/2003

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER	
FORD, JOHN K	

ART UNIT	PAPER NUMBER
3743	19

DATE MAILED: 06/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/531,531	Shirota et al.
	Examiner	Art Unit
	FORD	3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 3-10-03

2a)☑ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☑ Claim(s) 6, 7, 9-12, 15-20, 22, 23 and 40-42 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☑ Claim(s) 6, 7, 9-12, 15-20, 22, 23 and 40-42 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☑ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other:

Applicant's response (Paper No. 18) received March 10, 2003 has been studied carefully. Additional limitations regarding the angle of evaporator (cooling heat exchanger) have been added to claim 6.

Regarding the fact that claim 6 recites a corrugated fin type evaporator, it is the Examiner's understanding that corrugated-fin type evaporators in modern automobiles constitute the vast percentage (perhaps upwards of 90%) of automotive evaporators sold. If applicants disagree, please state what percentage of Denso's automotive evaporators sold are corrugated-fin types. The Examiner remains open to convincing evidence showing his understanding to be incorrect. Absent timely submission of any evidence to the contrary, the Examiner's understanding will be deemed established as fact for this prosecution.

On page 6, lines 7-17, applicant correctly summarizes JA '365 (Fig. 5) and that summary is incorporated here by reference.

On page 6, lines 18 - page 7, line 8, applicant incorrectly states purported facts regarding Denso's JP 2-17388. In Figure 1 of that document the evaporator angle, theta, is disclosed and on page 3, col. 2, 5-6, it appears theta is between 20-60 degrees (the Examiner does not read Japanese). Is that correct? Those values overlap

applicant's disclosed tilts of 10-30 degrees as disclosed on page 4, lines 19-21 of the current specification (i.e. between 20-30 degrees). Is that correct?

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6, 7, 9-12, 15-20, 22, 23 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teaching of JA 5-3365 (Fig. 5), JA 6-156049 and any one of Stech, JP'388, JP 63-17107 (Mazda) or Newton (USP 2, 728, 206).

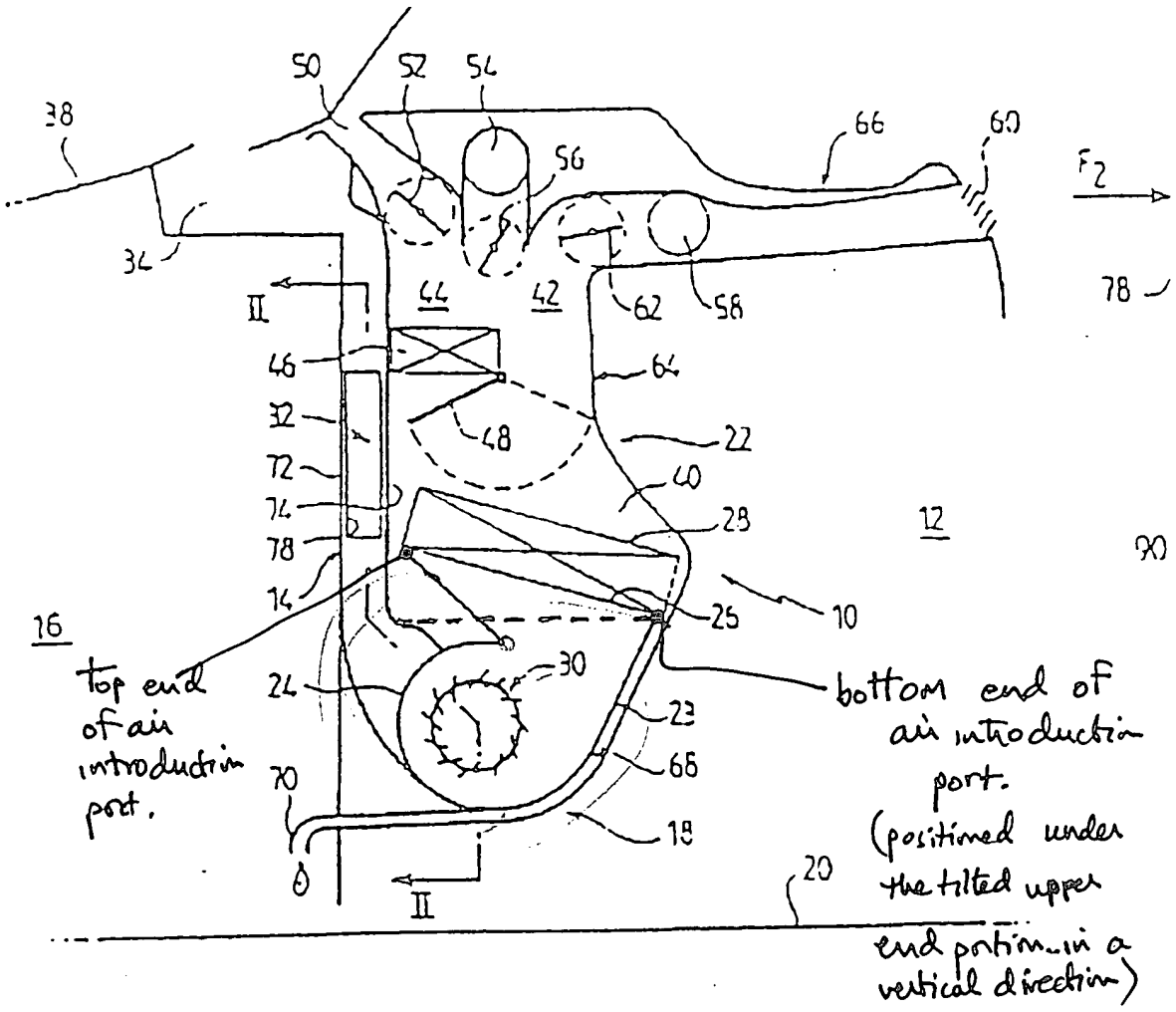
JA'365 (Fig. 50 shows the essential subject matter of claim 6 with the exception of the details of the fins on the evaporator (the evaporator is shown schematically). Arguably, elements 13 may not be "mode members" as called forth in the claims, but the translation submitted is so abbreviated these elements are not even mentioned. In applicant's response (paragraph bridging pages 13-14 of the June 25, 2001 amendment) translations are discussed but have not been provided. Please provide full translations of JA 5-336 and JA 6-16049 response to this action. This is a repeated request. As well, the top of the fan discharge (23) appears to be slightly below the bottom of the lowest point an evaporator (6) when a horizontal line is drawn across the reference.

Applicants describe JA'365 as follows:

"Applicants submit that JA '365 (Fig. 5) discloses an air conditioner in which the cooling heat exchanger is disposed approximately horizontal so that the bottom surface of the cooling heat exchanger is slightly inclined relative to the horizontal surface, and the heating heat exchanger is disposed approximately horizontal at an upper side of the cooling heat exchanger. In addition, the blower 20 is offset from the cooling heat exchanger 6 to a side of the cooling heat exchanger. However, JP 5-3365 fails to disclose the cooling heat exchanger being a corrugated fin type and does disclose the top end of the air introduction port being positioned above the titled lower end portion of the cooling heat exchanger and the bottom end of the air introduction port being position[ed] under the tilted upper end portion of the cooling heat exchanger in a vertical direction."

Contrary to applicants' statement, however, the bottom end of the air introduction port of JA'365 is clearly positioned under the tilted upper end of the cooling heat exchanger. Also, the Examiner does not know if JA '365 discloses a corrugated fin evaporator because it has not been properly translated. Moreover, Newton discloses the relationship of the air introduction port to cooling heat exchanger notwithstanding applicants' remarks to the contrary.

JA'049 also shows the essential subject matter of claim 6 however it too lacks a showing of fins on the evaporator 28, but does show mode control doors 52. 56 and 62. It appears to show the top end and bottom end of the air introduction port to be positioned as claimed. See the illustration below:



To have replaced elements 13 of JA'365 with the mode control doors of JA'049 to distribute air to vent, foot and defrost outlets to improve occupant comfort would have been obvious to one of ordinary skill. Alternatively, to have off-set blower 30 of JA'049 to one side of the evaporator 28 in the manner taught by Figure 5 of JA'365 to permit a

reduction in height of the unit for mounting in smaller vehicle spaces would have been obvious to one of ordinary skill.

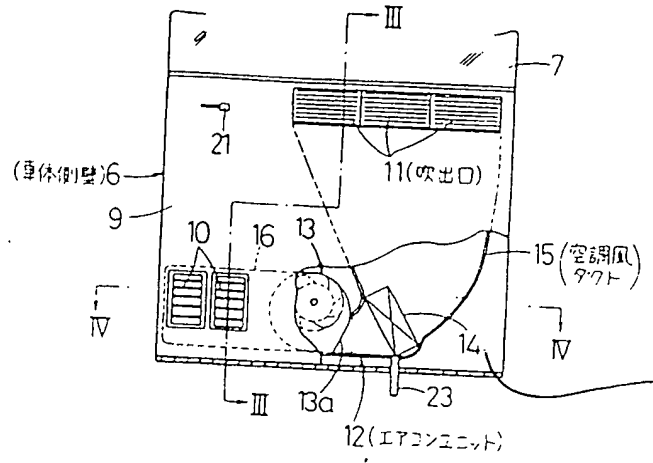
To the extent that is necessary to meet the claim limitation that the bottom end of the air introduction port is vertically below the top end (and not horizontally spaced therefrom as implied, but not explicitly claimed in claim 6) each of Stech, JP 2-17388 (Fig. 4) or JP63-17107 or Newton teach this configuration.

To have moved the evaporator 6 of JA'365 downward towards the bottom of the fan plenum so that the lowest point on the evaporator was below the highest point on the fan discharge aperture (23) to advantageously reduce the overall height of the unit to permit it to fit in smaller vehicles (with less vertical space) would have been obvious. This orientation of fan to evaporator is fairly taught by any one of Stech, JP'388 (Fig. 4) JP 63-17107 or Newton.

Mazda

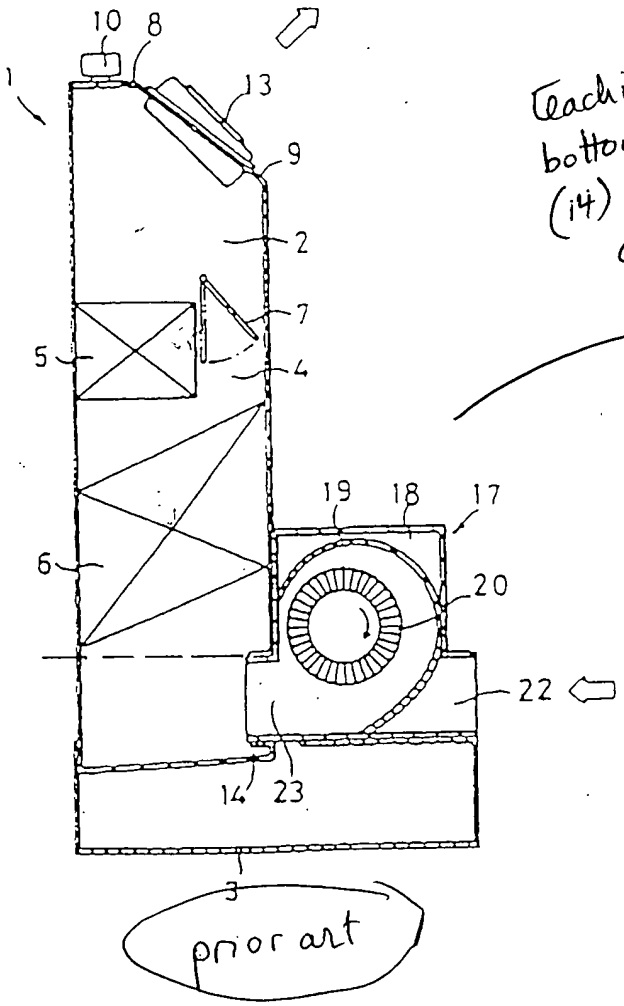
The proposed modification using JP 63-17107 as a teaching reference is illustrated below. Given this example, applicants can see that the same modification would have been obvious from any of the teachings of Stech, JP'388 (Figure 4) or Newton in the alternative. JA'107, however, is the simplest reference to understand and is used here for purpose of illustration. See next page.

第 2 図



teaching reference

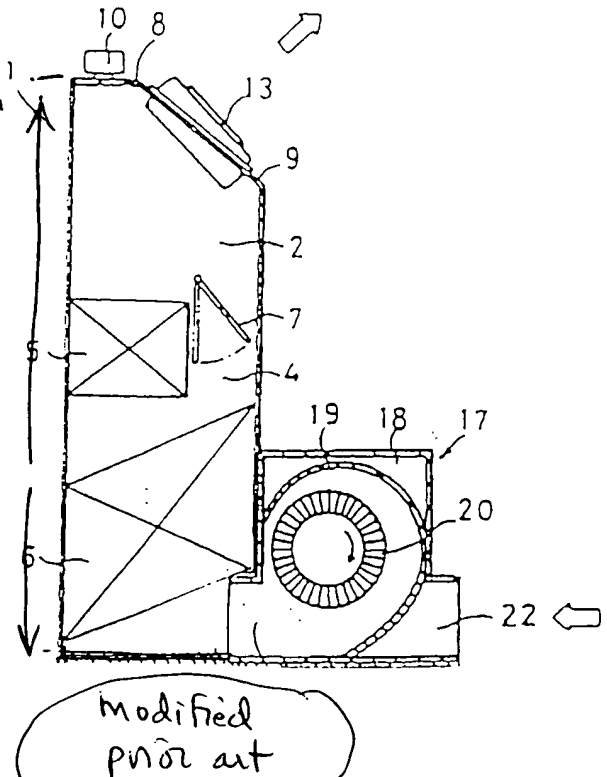
第 5 図



prior art

Teaching to move bottom of evaporator (14) to bottom of casing (12)

第 5 図



reduced height overall

Modified prior art

evaporator lowered to advantageously reduce overall height of the HVAC unit

Claims 6, 7, 9-12, 15-20, 22, 23 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpantentable over the prior art as applied to claim 6 above and further in view of Nagao or JA 63-38016.

To have used an evaporator in either the so modified JA'365 or JA'049 with serpentine fins between the tubes would have been obvious in view of either Nagao (element 2) or JA '016 (Figure 1, evaporator 5) given the fact that these types of evaporators are essentially ubiquitous in the industry and are inexpensive.

Regarding the condensate drain features, these are apparently shown in JA'049, but again the translation is so abbreviated one cannot be sure. Serpentine fins on the air-side of evaporators are extremely conventional items that Denso has been manufacturing for decades. It is not seen why their use here rises to the level of patentable subject matter.

Regarding claim 9 Nagao teaches this orientation of the tubes.

Claim 6, 7, 9-12, 15-20, 22, 23 and 40 – 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as applied to claim 6 above, and further in view of Gebhardt or Marsteller or Brandecker or Bates or Mullin et al.

To have oriented the blower in the prior art JA 5-3365 to have a mouth which has an upper portion of a discharge opening above the bottom of the evaporator and then a

tapering passage to convey the flow to the bottom surface of the evaporator would have been obvious in view of the teachings Gebhardt or Brandecker, to further reduce height of the unit.

Each of these references (Gebhardt or Marsteller or Brandecker or Bates or Mullin et al) teaches orienting the tubes parallel to the direction of air blow from below the heat exchanger. Orientation in this manner would have been obvious in view of the repeated teachings in the prior art for purpose of improving flow and heat exchange.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to John K Ford at telephone number 703-308-2636.

John K. Ford
Primary Examiner